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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/726,831	11/30/2000	Neal A. Osborn	35451/102	1494

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FOLEY & LARDNER
777 EAST WISCONSIN AVENUE
SUITE 3800
MILWAUKEE, WI 53202-5308

EXAMINER

TUNG, KEE M

ART UNIT	PAPER NUMBER
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2676

DATE MAILED: 01/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/726,831	Applicant(s) OSBORN ET AL.	
	Examiner Kee M Tung	Art Unit 2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 15-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The response filed 11/4/04 has been considered in preparing this Office action.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-13 and 15-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims require that "display mode is dependent upon the available power, memory and/or memory bandwidth". However, the original filed specification merely support or discuss "allocate the memory according to the display mode". Page 10 of the specification merely mention "Further, it may be desirable to choose a display mode based on other factors, such as, but not limited to, available unified memory space, available power, or available bandwidth on the communications bus." without any detail teachings of how to reconfigure the system. The claims also require that "display logic is configured to ... and allocate the memory according to the display mode **by sizing the frame buffer** and change the display mode **and the size of the frame buffer** during operation of application running on the computing device according to changing graphical needs of the application, available unified memory space, and available

power". However, the specification only support allocating the memory based on the display mode not by the sizing of the frame buffer and furthermore the specification merely mention "change of the display mode according to change graphical needs of the application, available unified memory space, and available power" not "the size of the frame buffer" as claimed. Without any detail support from the specification, the features would be considered as well know or within the level of ordinary skill in the art to modify from the similar system, for example, from teachings of "allocating memory based on the changed of display mode" to come up with the similar support of "display mode changes based on other factors, such as, but not limited to, available unified memory space, available power, or available bandwidth on the communications bus" as claimed for the 35 USC 103 rejection below.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-13 and 15-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crocker et al (5,915,265 hereinafter "Crocker") in view of Nale (5,793,385) and Tsang (5,961,617).

Crocker teaches a computing device (Fig. 2) comprising a communication bus (either CPU bus 2 or I/O bus 8); a display (7) configured to display in more than one display mode and coupled to the communications bus; a processor (1) coupled to the

display and to the communications bus; and a RAM (4) coupled to the communications bus, the RAM being partially allocated as a frame buffer (12), the RAM being a unified memory, the RAM configured to receive and provide access to display information to be communicated to the display, the RAM being controlled by display logic (such function is performed by MC 20, MA 26, or CR1-CR3 (22-24)), the display logic being configured to manage the memory and allocate the memory according to the display mode by sizing the frame buffer (based on the display resolution and color, col. 2, lines 65-67) and the display logic is configured to change the display mode and the size of the frame buffer during operation of an application running on the computing device according to changing graphical need of the application, available unified memory space, **and** (it is note that the specification only support a "**OR**" not a "and") available power, the display modes including at least one of resolution modes and color modes (col. 2, lines 65-67). It is noted that Crocker fails to explicitly suggest or teach "changing of display mode and allocating more memory without reboot the system (during the operation of application)". This is what Nale teaches (col. 1, lines 41-49 and col. 3, lines 13-29). Nale further teaches a UMA system (Fig. 1) comprising a CPU (2); a system logic (4); a graphics controller (6); a display monitor (8); a unified system memory (10); and an address translation (12). It would have been obvious to one of ordinary skill in the art at the time the present invention was made to combine the teachings of Nale into the system of Crocker because Nale is specifically designed to overcome the prior art problem, such as, to reboot the system to dedicate more memory to the graphics controller of Crocker (see, col. 1, lines 20-38). However, the combined system fails to explicitly teach or

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suggest the UMA provides power saving while providing performance that is acceptable to user. This is what Tsang teaches (col. 1, lines 16-50). It would have been obvious to one of ordinary skill in the art at the time the present invention was made to combine the teachings of Tsang into the combined system of Crocker and Nale in order to provide an UMA with power saving features that is especially critical in handheld, portable, possibly wireless, products where battery life is a primary and essential operational issue as taught by Tsang (col. 1, lines 16-51). Therefore, at least claims 1-4 and 15-30 would have been obvious (see above under 35 USC 112 for the reasons why it is obvious to one of ordinary skill in the art to change display mode based on the available memory and/or memory bandwidth and available power).

As per claims 5-13, Crocker teaches the display mode (and the size of the frame buffer) is dependent on the resolution (could be any resolution) and number of colors (any number of colors) desired (see col. 2, lines 65-67).

Response to Arguments

5. Applicant's arguments filed 11/4/04 have been fully considered but they are not persuasive.

Regarding to the teachings of allocating memory without reboot the system, a new reference to Nale has been added.

Applicant argues that nothing in prior art teaches "changing the display mode and changing the size of the frame buffer are based on a **combination of the** available memory space, power and the graphical needs of the application. See above under 35 USC 112 for detail. Similarly, see above for claim 4.

Regarding claims 7 and 9-11, the different number of bits and pixels would have been obvious by any resolution and number of colors of Crocker (col. 2, lines 65-67).

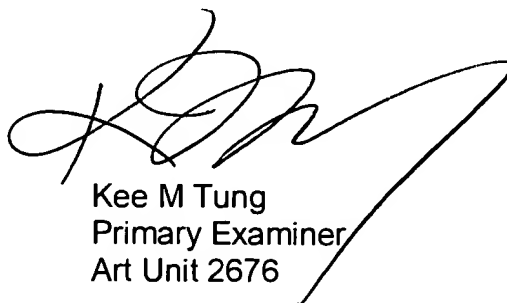
Regarding claim 29, a cellular phone is considered as a handheld device, a portable device, or a battery power device (see Tsang, col. 12, claim 9).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kee M Tung whose telephone number is 703-305-9660. The examiner can normally be reached on Tuesday - Friday from 5:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 703-308-6829. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kee M Tung
Primary Examiner
Art Unit 2676